

Appl. No. 09/536,932
Amdt. dated February 28, 2005
Reply to Office Action of December 28, 2004

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-26 (Canceled).

- 1 27. (New) A method of providing an image of a sample with a spectral
- 2 imaging system, the method comprising:
 - 3 illuminating the sample with radiation from an illumination source within a
 - 4 first band of wavelengths, wherein the first band of wavelengths excites regions within the sample
 - 5 causing the regions to emit radiation within a second band of wavelengths;
 - 6 spectrally resolving the wavelengths within the second band of wavelengths
 - 7 with an interferometer that comprises at least first and second turning mirrors, one polarizing beam
 - 8 splitter, a detector array and a processor coupled to the detector array and coupled to a monitor;
 - 9 creating an interferogram of the sample with the interferometer that is
 - 10 superimposed on an image of the sample transmitted by the interferometer, the interferogram
 - 11 creating step comprising:
 - 12 preferentially reflecting a first polarization with the beam splitter to the
 - 13 first turning mirror;
 - 14 preferentially transmitting a second polarization with the beam
 - 15 splitter to the second turning mirror; and
 - 16 combining the first and second polarizations;
 - 17 imaging the sample and the interferogram of the sample on the detector
 - 18 array;

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19 outputting a plurality of signals corresponding to an intensity at each pixel
20 of the detector array; and

21 displaying an image of the sample with the processor on the display.

1 28. (New) A method in accordance with claim 27 wherein the first
2 polarization is perpendicular to a plane of incidence.

1 29. (New) A method in accordance with claim 27 wherein the first
2 polarization is parallel to a plane of incidence.

1 30. (New) A method in accordance with claim 27 further comprising
2 performing a Fourier transform for each pixel with the processor.